

USEFULNESS OF MASSAGE IN TREATMENT OF ILLS



Upward friction with each hand alternately on the back of the foot.



Friction of anterior aspect of the arm.



Dr. Douglas Graham Says Its Application Should Not Be Intrusted to Unskilled or Ignorant Pounders

The history of massage is coeval with mankind, and the art has long since extended into every special and general branch of medicine. It has been left, however, for Dr. Douglas Graham to prepare the first serious and authoritative book on the subject in the English language. It has just been published by the J. B. Lippincott Company.

By DOUGLAS GRAHAM, M. D.

THAT massage has been steadily gaining in favor with the medical profession and the public for the past thirty years can hardly be denied, even though its performance has usually been left in the hands of the most common and unskilled people, to whom it is intrusted as a matter of favor, friendship or charity, without regard to their qualities or qualifications. It is a mystery yet to be explained why patients who are proof against the most time-honored remedies and defy the most painstaking skill should be assigned to such hands, as if they were endowed with supernatural virtues. Contrary to the advice of physicians, however, many patients not infrequently prefer to fall into such hands, and by so doing put a premium on ignorance. Benefit or harm may follow from the roughest kind of scraping and pounding, and in a matter of such great importance as recovery from chronic and often hitherto regarded as hopeless invalidism the means employed cannot be too carefully selected, especially when it is a question of such a potent agent as massage, which affects, either directly or indirectly, every function of the human body.

A study of the effects of massage on the healthy body is commensurate with that of physiology itself. The pressure of deep massage exerts a simultaneous influence upon all the tissues within its reach, upon the skin, fascia, muscles, blood vessels, lymphatics and nerves. The skin, by reason of its highly organized structure, is remarkably well adapted for receiving and transmitting the influence of massage. Beginning at its exterior, we find that the epidermis not only limits watery evaporation, prevents the absorption of noxious substances and diminishes the evolution of heat but it also serves as a protection to the papillary layer against the encroachment of too vigorous friction or other external violence.

To aid and imitate the natural functions of the human body is often the chief aim of the physician, and in doing this he may constitute himself an artist of the highest order, and few if any remedial agents can be called to his assistance that will so exactly reproduce the mechanical forces that carry on nutrition as massage. In attempting a description of the effects of massage upon the muscles and deep fascia, and indeed upon all the other tissues, it would be desirable that the mirror should be held up to nature as perfectly as it ever has been in any work of art, and doubtless the future developments of physiology will add much to the lights and shadows of this picture and remove from it a great deal of the mysterious and unhallowed mist that has so long obscured it; for I am sure that no more fertile field awaits the investigations of physiologists than that of ascertaining the similarities and differences between massage and exercise. No better need of praise could be bestowed upon any therapeutic agent whatever than the old-fashioned, haughty, supercilious way of dismissing the subject of massage as unworthy of notice by saying that it was merely a substitute for exercise and that it acted upon the mind of the patient. According to this way of reasoning if one were deprived of air a substitute for it, if it could be obtained, would be of no account. Appropriate exercise acts and reacts favorably upon mind and body, upon nerves and muscles, and people who can exercise freely without fatigue and who can eat and sleep well seldom need massage.

A study of the natural functions of the human body alone might teach us to use massage when they are in a state of suspension, abeyance or morbid action. By their intermittent compression and relaxation muscles in action exert a sort of massage upon each other. The ascent and descent of the diaphragm in respiration make continual massage and passive motion upon the organs above and below it, more especially upon the abdominal and pelvic organs, and when its movements are limited from want of exercise or restrained by tight lacing it is only too familiar how feeble become appetite and digestion, and the bowels constipated. The voluntary muscles should weigh about one-half the weight of the body, and receive about one-fourth of the total amount of blood in the body, and few organs are as plentifully supplied, and their vessels may with propriety be considered as the derivative channels for the relief of hyperemic conditions of internal organs.

Interesting observations have been made by Dr. Hopadze showing the influence of massage on the metamorphosis and assimilation of nitrogenous food substances. He daily estimated the nitrogen of the food, feces and urine for one week before, during one week of massage, and for a week after, and found that the nitrogenous metamorphosis in all four persons to whom he gave daily massage of twenty-five minutes invariably increased and lasted for seven days after the week of massage. The assimilation of the nitrogenous substances of the food increased in all the cases and lasted during the week after massage. All the four patients increased in weight during the week following the massage; but during the week of massage one gained in weight, two lost and one was unchanged. It is possible that these changes lasted longer than seven days after the massage, but the observations were not continued beyond this time. Another series of observations by Hopadze showed that massage of the abdomen for ten minutes lessened the sojourn of the food in the stomach from fifteen to seventy-five minutes.

Zabudowski has also made some interesting experiments to learn how fatigue of the muscular walls due to fatigued muscles are influenced by massage. Muscles of uninjured men were exhausted by a series of rhythmic contractions caused by an induction current. Under massage they soon regained their lost vigor, so that the contractions were almost equal to the first, while a rest for the same period without massage had no effect. These experiments, showing the restorative effects of massage upon wearied muscles, were more than confirmed in man

health. A rapid flow, whether in a river, blood vessel or lymphatic, prevents the deposit of particles held in suspension. In an interesting article on the "Influence of Rest and Motion on the Phenomena of Life" (Archiv für die Gesamte Physiologie, vol. xvii, page 125) by Dr. Horvath of Kieff, we are told that it was with the greatest astonishment that the observer saw that the direct introduction of bacteria into the arteries instead of increasing or calling forth disease on the contrary produced no observable indisposition in the animals so treated. Indeed, the bacteria disappeared to such an extent that they could not be found in the blood of the vessels where they had been injected in the greatest abundance. Animals that die from bacteria poisoning have the bacteria for the most part in the lymphatics, never in the large arteries.

For further evidence of free circulation overcoming the influence of noxious substances we have only to recall the fact that laborers will work in an open sewer with impunity, while business or professional men in their offices near by would be made sick if they should leave their windows open. Let the circumstances be reversed and those in active exercise would be less likely to suffer than the sedentary laborers. It has been estimated that a person in exercise consumes four or five times as much oxygen as he does when at rest, but in the case of one working in a sewer the air is so vitiated that we must conclude that it is not the oxygen but the exercise and the active circulation that keep off the bad effects of the effluvia. Even local stagnation of the blood from injury or other cause may lead to pathological changes resulting in death or requiring the amputation of a limb.

The apparent mystery and contradiction of many physiological experiments need seldom arise, if it only be borne in mind that irritation when mild produces symptoms of stimulation; when stronger or longer continued, symptoms of exhaustion. Thus gentle centripetal stroking, though soothing, is in a physiological sense a mild irritant of the superficial vessels causing a narrowing of their calibre and a stronger and swifter current in them by reason of the stimulating influence on their muscular coat and vasomotor nerves.

Position of hands for massage of the back.

from which we recover by food and sleep. Then comes the fatigue from which we do not recuperate as usual, the fatigue of being overworked, worried, or in common parlance, "played out." Here rest or change of scene is of the first importance, and may be all that is necessary; but if this be impracticable or without effect, tonics and sedatives may suffice. Before rest, change or medication had been resorted to, it has been my lot to have tried massage in several cases of this class where it has "lifted them up out of the rut" and been the means of procuring good sleep with vigor of mind and body so that they were able to proceed with their duties uninterruptedly and as easily as ever. Thirdly, there are the continually wearied, wakeful and nervous business or professional men with numerous and varying ailments, who have learned by experience that "the labor they delight in physics pain," and who find more relief in work than in rest. Massage will sometimes put such on a higher plane of existence and give them a zest for work which they have not derived from any other source. But, unfortunately, the interest they gain in their stock of vitality in this way is apt to be used up as fast as it accumulates. Fourthly, there are the neurasthenics who are simply spoiled children, who have plenty to live on without work and usually more, who have little or no object in life and who can do what they please and cannot do what they don't please, who take delight in telling of all the eminent medical authorities whose care they have been under without any benefit resulting and who are never happier than when they can be regarded as interesting by trying some method of treatment that is novel to them in order that they may have the final satisfaction of saying that it did them no good. I well remember one such who defiantly said she would like to see any physician who could benefit her. Serious disease came upon her, she could not or would not understand the nature of it and allow herself to be treated as other

and alcohol in restoring tone to the respiratory centre and vascular system, without, however, the injurious after effects of these internal remedies. In place of headache, drowsiness and disordered digestion, which are so apt to result from the use of narcotics and stimulants, after sleep from massage the patient is refreshed and buoyant in mind and body.

Massage of the back alone will often relieve fullness of the head and headache, and this repeated may be all that is necessary. Massage of the back and head will more frequently be used, but general massage is the best for the majority. I have more than once defeated the object in view by overdoing massage on starting, when, as the sequel showed, fifteen minutes would have been all that the patient could take with advantage. I have sometimes overdone the matter at the patient's own request for a longer application, though I had warned him beforehand, and following the advice of an eminent physician I have sometimes used massage too freely. The argument too often used, that massage can do no harm if it does no good, is a dangerous one. When a man understands one branch of the medical profession well one of the commonest errors is to suppose that he understands all the rest equally well, as if our knowledge of massage, like everything else, did not come through experience.

The time of day at which massage should be given is in some cases of importance. If a patient be not very weak as a general rule I prefer the time of day at which he feels the worst or just before this, so as if possible to tide him over this period, which can sometimes be done. When a patient does not sleep well the later in the day massage can be done the better. When a patient of a nervous temperament sleeps well massage should not be administered in the evening, as it is very sure to make him wakeful, and this applies to such as are well in their nervous system, but may require only local massage for a joint or muscular affection. These are so refreshed after massage that they do not feel the need of sleep. The antitoxins of fatigue work better when the patient is awake and resting than when asleep. Patients may be

Art Has Extended in Every Branch of Medicine—Treatment First Aid to "Played Out" Business Man

fortunate who may be predisposed to neurasthenia those who are deeply interested in some hobby or occupation that keeps mind and body active have found the best means of prophylaxis. The same means that serves for its prevention also supplies us with a clue to one of the most valuable agents that can be employed for its relief or recovery. Exercise keeps the circulation active, but requires effort of brain, spinal cord and nerves, as well as muscles, at a time when our object may be to afford rest to one or all of these parts of an overtaxed nervous system. Massage supplies this want and will keep the circulation going with a minimum or no expenditure of nerve force from the patient; and deep massage without friction will lessen the beats of the heart and afford it rest also. Nay, more, for it is getting to be the fashion not only among the laity but also with some physicians to say that massage imparts energy to the patient, though I confess I do not exactly understand what this means. Certainly many who submit to massage feel much more vigorous, light and supple after even the first application than they did before it. But may not this rather be owing to the raising of their latent energies and restoring the equilibrium of their forces by facilitating the circulation of blood, the flow of lymph and the transmission of nerve force?

It has long been recognized as a diagnostic feature of neuralgia that, notwithstanding the tender spots at various points of the affected nerves where they emerge from deeper to superficial structures, firm pressure may be made on the painful nerves without aggravating the pain, and very often with the effect of relieving it when rest alone does not. The wonder is that this hint has not been more utilized in practice and that there are not more claims of priority for the use of massage in its various forms for the treatment of neuralgia. Dr. Balfour of Edinburgh in 1819 implied that he was the originator of the treatment of neu-

ends of the fingers, and this only of slight extent, proceeding in the same direction as when longer sweeps can be made. In such case when the hair is long and thick by running the fingers through it close to the scalp additional support will be afforded, which will secure more effectual manipulation by their palmar surfaces and prevent friction. An excellent way and pleasant to the patient to finish massage of the head is to place one hand on each side of it and make simultaneous manipulations away from the median line from before upward and backward. The groove between the occiput and back of the neck should receive special attention by accurately adapting the palmar surface of the fingers to it as far as the median line, first on one side and then on the other, and making upward and forward manipulations so as to act upon the insertion of the muscles. Downward and backward manipulations have but little effect here, though they may be used advantageously with the thumb over the mastoid processes.

But what is the use of all this massage of the head? Its use and benefits may be as extensive as a morbid influence acting on the fifth pair of nerves is injurious. It is a plain saying, but a true one, that it is a poor rule that does not work both ways, and we see no reason why an agent like massage, that favorably influences the circulation, nutrition and sensation of the branches of the fifth pair for the resulting improvement, should not manifest its benefits in as many different ways as an injurious influence does in other ways. Brown-Sequard enumerates no less than eleven different affections of the eyes that may arise from a supra or infra orbital neuralgia, in illustration of the general rule that "the same periphrase cause of irritation acting on the same centripetal nerve may produce the greatest variety of effects, including every functional nervous affection or disorder."

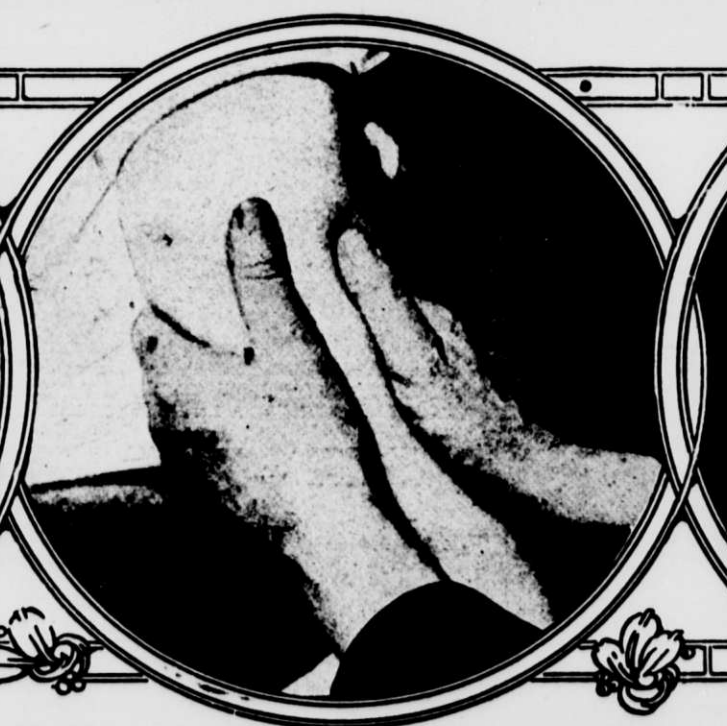
The subjective effects of massage of the head are, in general, comfort with a tendency to go to sleep, which, strange as it may seem, is equally consistent with an aptitude for mental work, freedom of respiration through the nostrils and light, clear feelings taking the place of dull, heavy ones. Increased suppleness of the scalp and tissues generally would seem to be the objective effect of massage, which often precedes improvement in detail of more important characters. The most immediate and apparent instance of this being relief of congestion of the Schneiderian membrane and the ease of expelling tenacious mucus. The deep lymphatics of the face are derived from the pituitary membrane of the nose, and that these can be made more permeable by means of massage will account in great part for the resulting freedom of respiration through the nostrils when they have been obstructed and congested. Division of the fifth pair causes the nasal mucous membrane to swell and so disturbs its nutrition as to destroy the power of smell, the passage becoming obstructed by accumulated mucus. Pressure of effete matters upon the terminal branches of the fifth pair would seem to have a similar influence, but to a less degree, and this pressure can be removed to a marked extent by means of massage. Then it need hardly be repeated that increased circulation in the external tissues of the head will do something toward relieving congestion in more deeply situated parts.

Massage is being applied to almost every accessible part of the human body, inside and out. Aspirants for fame are now as zealous in promoting its virtues as they were, not many years ago, in denouncing the same as a vile, unscientific imposture. I used to think that it was a great annoyance to have an electric fly buzzing in our nose, but according to the teachings of modern science, if he had only buzzed fast enough it would have given us great pleasure, for this would have been vibratory massage. During the ten months prior to 1895 Dr. J. Mount Bleyer of New York had treated two hundred cases of simple hypertrophy of the turbinated bodies by means of electrovibration or faradic massage with results that were far better than those derived from medication or surgery or both together. He used an instrument that gave from one to one hundred thousand vibrations a minute to an electrode introduced into the nose, and found that when the interruptions of the current were slow the sensation was very disagreeable, but when rapid and fine the sensation was pleasant and enjoyable. He used from ten thousand to fifteen thousand vibrations a minute and the nose was from twelve to fifteen minutes. Immediately after the first sitting the turbinated bodies were reduced in size and breathing became possible through the side of the nose that had previously been obstructed; the secretions became more abundant and the entire head had a feeling of clearness. After each sitting a strong solution of alum was applied. It is a contradiction to say that there are no contraindications to this method. With a little sweet almond water, vaseline or cold cream on the end of a little finger patients can massage the interior of their own nostrils with good effect.

"Science consists of human experience tested and placed in order."



Position of hand for massage of the cheek, while making alternate manipulation with other hand on forehead.



Manipulations of the biceps and triceps; one hand contracts as the other relaxes.



Stretching the tissues above and below the orbit and away from the outer corner of the eye.

by the same investigator. He found that after severe exercise a rest of fifteen minutes brought about no essential recovery, while after massage for the same period the exercise was more than doubled. One person experimented upon lifted a weight of one kilo (2.2 pounds) 840 times at intervals of one second by extreme flexion of the elbow joint from a table upon which the forearm rested horizontally, and after this he could do no more. When the arm had been massaged for five minutes he lifted the weight more than 1,100 times in the same manner as before without fatigue. The difference in muscular sensation was very striking after rest alone from work in comparison with that after massage.

There is a popular impression that muscles always grow larger under massage. This is not uniformly so, even though improvement be going on in other ways. I have frequently observed in people who had massage without any resistance movements that their muscles grew larger and stronger as if they were doing heavy gymnastic exercises. I have told such that at some time in their lives they must have been very athletic, and I have not yet been mistaken even though many years have elapsed. The nerve cells in the anterior columns of the spinal cord that preside over nutrition were undoubtedly dormant and all ready to respond to external stimuli to wake them up.

Evidence in favor of free circulation would be almost as superfluous as was Sancho Panza's apostrophe to sleep. Running water frees itself from impurities to a great extent, and unimpeded circulation may well be likened to a running stream, doing useful work and keeping the machinery of the various districts of the body in motion and in

But let centripetal stroking, or any other form of massage, be continued sufficiently long, or become stronger, and hyperemia will result, indicating relaxation of the vascular walls due to overexcitation or exhaustion of the tone of their muscular coat and vasomotor nerves. But retardation is obviated by the mechanical effect of the massage pushing along the returning currents, so that the ultimate effect in either case is an increased rapidity of the circulation.

It will now be evident that massage rouses dormant capillaries, increases the area and speed of the circulation, furthers absorption and stimulates the vasomotor nerves, all of which are aids and not hindrances to the heart's action and to nutrition in general. Seeing that more blood passes through regions massaged in a given time there will be an increase in the interchange between the blood and the tissues, and thus the work done by the circulation will be greater and the share borne by each quantity less.

Exercise accelerates the action of the heart and after a time diminishes blood pressure, which means an increase in the rapidity of the current and in the quantity of the flow through the relaxed, distended or stretched blood vessels. Massage also diminishes blood pressure, but without increasing the activity of the heart. On the contrary, the heart's action is generally lessened in force and frequency.

Neurasthenia, the background to the picture of nearly all diseases and injuries, whether of an organic or functional nature, for our present purpose may be regarded from other points of view. First, there is the natural and unpleasant fatigue, the result of an active and satisfactory day's work,

people, and she prematurely lost her life. There is no help for such but to lose their fortune and be obliged to work. However, they form a large part of a clientele of massage.

Fifthly, there are those who, in spite of rest, change and medication, have become chronic neurasthenics, the result of business reverses, overwork, worry, loss of relatives, disappointed hopes or, as a sequel of some affection that has existed in some part of the system, but which has disappeared or become of secondary importance. If in these the symptoms point most prominently to spinal exhaustion—myelasthenia—where exercise easily tires and aggravates, massage will be of marked benefit as a tonic and sedative and corrective of morbid sensations; of less advantage, but not useless, in cases where the symptoms point about equally to easy exhaustion of spinal cord and brain.

Even in health excessive fatigue may prevent sleep. The cardio-inhibitory and the vasomotor centres in the neighborhood of the respiratory centre may be affected by sympathy with the latter, or they may suffer from impaired nutrition, deficient nervous energy or irregular blood supply, as may other nerve centres. But to return, for the relief of incorrect appreciation of time and frequent repetitions of waking up at night, as well as for the majority of other symptoms of neurasthenia, massage has proved an efficient agent in my hands. The feeling of loneliness and depression that is so apt to come in the night time when people are run down or in ill health is usually dispelled very promptly by means of massage. In this and other respects its action is similar to the primary and agreeable effects of opium

benefited by massage when they are too weak to travel.

Much of the impenetrable mystery that has long surrounded the nature and treatment of insanity passes away when viewed from the sensible standpoint of Dr. Edward Cowles, superintendent of the McLean Hospital. He writes me that "in many cases of insanity the depression, melancholy, &c., are but the outcome of neurasthenic conditions indicating the need of rest and improved nutrition as thoroughly as in persons not insane. I think massage is of great value in the treatment of the insane and the indications for it are the same as in ordinary cases of neurasthenia, except that mental conditions sometimes modify or forbid its use." He is of the opinion that no mental disease destroys all normal mental activity and that the mental therapeutics are to encourage all normal mental activity while correcting or discouraging all morbid activity. This is the same principle that I have applied to the treatment of impaired motion for many years. The law of progress is from the general to the special, and to Drs. Cowles and Page more than to any others we are indebted for the valuable information that rest and seclusion are more likely to aggravate than to benefit cases of mental depression. Dr. W. S. Playfair of London suspected that such was the case after a short trial of these means and so expressed himself in the *Lancet* of December, 1881, but sufficient confirmatory evidence was waiting until Dr. Cowles's report for 1882 appeared, and the same testimony was again given in Dr. Page's report for 1883.

It is a matter of common observation that those who are compelled to hard manual labor seldom suffer from nervous prostration, and among the more

raikia and other pains by compression and percussion. The value of these when skillfully used certainly was a discovery, as was the value of massage in relieving the nervous system and stimulating nutrition and also the benefits of the cure of writer's cramp, sprains, &c.

To most people massage of the head is highly delightful, more agreeable, indeed, than on any other part of the body to which it is applicable, and in various disturbances as beneficial as it is pleasant. To account in great part for this increased comfortable sensation we need only remember the acutely sensitive condition of the terminal filaments of the fifth pair of nerves, and that they will show signs of sensibility under circumstances in which spinal nerves would make no response. But massage of the head is seldom attempted, for manipulators are so accustomed to grasping muscular masses that when they cannot do this, as on the skull, they are apt to think that nothing can be accomplished. Even Eschtrader is of the opinion that massage of the head is of little use, for no other reason evidently than that he is at a loss to know how it can be done. When manipulation of the head is attempted it is usually, I might say almost always, in a way that would be better described by the word shampooing than by any other. Save with moisture for the purpose of cleanliness such a procedure had better be omitted; indeed, most people would object to such dry rubbing on account of its "setting their nerves on edge." The soothing influence of gentle stroking or of the hair being combed by another would be preferable.

Upon tough scalp that cling closely to the skull massage is very hard work and all the available motion that can be gained will often be by means of the